



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,197	07/17/2003	Barton James Jenson	35026.001	3954
34395	7590	06/23/2005		
OLYMPIC PATENT WORKS PLLC P.O. BOX 4277 SEATTLE, WA 98104				
			EXAMINER DHARIA, PRABODH M	
			ART UNIT 2673	PAPER NUMBER

DATE MAILED: 06/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/622,197	Applicant(s) JENSON ET AL.	
	Examiner Prabodh M. Dharja	Art Unit 2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 19-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2673

1. **Status:** Receipt is acknowledged of papers submitted on May 02, 2005 under amendments and new claims, which have been placed of record in the file. Claims 1-17 and 19-21 are pending in this action. Claim 18 is cancelled

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2,7,9-12,15-17,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald (5,212,471) in view of Freeman (US 2004/0109251 A1).

Regarding Claim 1, McDonald teaches a visual display system (Col. 1, Lines 13-19) comprising: a display light source that transmits an image in at least partially polarized light (Col. 1, Lines 40-49); and a combiner that transmits light from a field of vision behind the combiner to a viewer in front of the combiner, the combiner reflecting a first portion of the light to superimpose the image as a virtual image within the transmitted field of vision, rotating the polarization of a second portion of the light (Col. 1, Lines 40-56, Col. 3, Lines 5-22), and transmitting the second portion of the light, the second portion of the light therefore having low efficiency for reflection towards the viewer from optical boundaries encountered by the second portion of the light following rotation of the plane of polarization by the combiner (Col. 2, Line 23-64, Col. 3, Lines 5-25).

However, McDonald fails to recite a visual display system that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system comprising: a combiner positioned between the occupant (viewer) and the windshield.

However, Freeman teaches a visual display system (page 1, paragraph 5, Lines 1-4) that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system (page 1, paragraph 6, page 3, paragraphs 39,40, page 2, paragraph 30) comprising: a combiner positioned between the occupant (viewer) and the windshield (page 1, paragraph 6, page 2, paragraph 27, page 3, paragraphs 39-41).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Freeman in McDonald teaching for having a high contrast image display that using laminated windshield as a combiner and also reduces the degree of double imaging.

Regarding Claim 2, McDonald teaches the light is s-polarized, and the polarization of the light is rotated by the combiner to produce p-polarized light (Col. 3, Lines 5-25).

Regarding Claim 7, McDonald teaches a head-up display, providing a primary virtual image of an automotive gauge with only attenuated ghost images (Col. 2, lines 65-68).

Regarding Claim 9, Freeman teaches a see-through projection display; and a head-up display in a vehicle (page 3, paragraphs 39, 40).

Regarding Claim 10, McDonald teaches a relay optic that rotates the polarization of the reflected, first portion of the light (Col. 2, Line 23-64, Col. 3, Lines 5-25).

Regarding Claim 11, McDonald teaches a head-up display to allow a viewer to wear-polarized sunglasses (Col. 3, Line 55 to Col. 4, Line 5).

Regarding Claim 12, McDonald teaches the visual display system wherein the display light source is selected from among: a display projection system utilizing a light guide, diffuser, liquid crystal display, and transmitting window; a vacuum fluorescent display; a laser or light emitting diode combined with a scanning mirror; a laser or light emitting diode combined with a number of lasers, LEDs, and scanning mirrors; a laser or LED combined with scanning lenses; and an array of LEDs that together compose a graphical or textual display (Col. 4, Lines 6-58).

However, McDonald fail to recite a visual display system that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system comprising: a combiner positioned between the occupant (viewer) and the windshield.

However, Freeman teaches a visual display system (page 1, paragraph 5, Lines 1-4) that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system (page 1, paragraph 6, page 3, paragraphs 39,40, page 2, paragraph 30) comprising: a combiner positioned between the occupant (viewer) and the windshield (page 1, paragraph 6, page 2, paragraph 27, page 3, paragraphs 39-41) and projection system (page 3, paragraphs 39,40).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Freeman in McDonald teaching for having a high contrast image display that using laminated windshield as a combiner and also reduces the degree of double imaging.

Regarding Claim 15, McDonald teaches a visual display system (Col. 1, Lines 13-19) comprising: a display light source that transmits an image in at least partially polarized light (Col. 1, Lines 40-49); and a combiner that transmits light from a field of vision behind the combiner to a viewer in front of the combiner, the combiner reflecting a first portion of the light to superimpose the image as a virtual image within the transmitted field of vision, rotating the polarization of a second portion of the light (Col. 1, Lines 40-56, Col. 3, Lines 5-22), and transmitting the second portion of the light through the windshield, the second portion of the light therefore having low efficiency for reflection towards the viewer from windshield-related optical boundaries encountered by the second portion of the light following rotation of the plane of polarization of the display light and transmission by the combiner (Col. 2, Line 23-64, Col. 3, Lines 5-25).

However, McDonald fail to recite a visual display system that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system comprising: a combiner positioned between the occupant (viewer) and the windshield.

However, Freeman teaches a visual display system (page 1, paragraph 5, Lines 1-4) that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a

Art Unit: 2673

windshield the visual display system (page 1, paragraph 6, page 3, paragraphs 39,40, page 2, paragraph 30) comprising: a combiner positioned between the occupant (viewer) and the windshield (page 1, paragraph 6, page 2, paragraph 27, page 3, paragraphs 39-41).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Freeman in McDonald teaching for having a high contrast image display that using laminated windshield as a combiner and also reduces the degree of double imaging.

Regarding Claim 16, McDonald teaches provide a head-up display (Col. 1, lines 8-11).

Regarding Claim 17, Freeman recite the display projection system (page 3, paragraphs 39, 40).

Regarding Claim 21, McDonald teaches a visual display system (Col. 1, Lines 13-19) comprising: a display light source that transmits an image in at least partially polarized light (Col. 1, Lines 40-49); and a combiner that transmits light from a field of vision behind the combiner to a viewer in front of the combiner, the combiner reflecting a first portion of the light to superimpose the image as a virtual image within the transmitted field of vision, rotating the polarization of a second portion of the light (Col. 1, Lines 40-56, Col. 3, Lines 5-22), and transmitting the second portion of the light through the windshield, the second portion of the light therefore having low efficiency for reflection towards the viewer from windshield-related optical boundaries encountered by the second portion of the light following rotation of the plane

Art Unit: 2673

of polarization of the display light and transmission by the combiner (Col. 2, Line 23-64, Col. 3, Lines 5-25) and a relay optic that rotates the polarization of the reflected, first portion of the display light to direct p-polarized light to the vehicle occupant (Col. 3, Lines 5-25).

However, McDonald fail to recite a visual display system that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system comprising: a combiner positioned between the occupant (viewer) and the windshield.

However, Freeman teaches a visual display system (page 1, paragraph 5, Lines 1-4) that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system (page 1, paragraph 6, page 3, paragraphs 39,40, page 2, paragraph 30) comprising: a combiner positioned between the occupant (viewer) and the windshield (page 1, paragraph 6, page 2, paragraph 27, page 3, paragraphs 39-41).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Freeman in McDonald teaching for having a high contrast image display that using laminated windshield as a combiner and also reduces the degree of double imaging.

4. Claims 3,4,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald (5,212,471) in view of Freeman (US 2004/0109251 A1) as applied to claims 1,2,7,9-12,15-21,21 above further in view of Weber et al. (US 2004/0135742 A1).

Art Unit: 2673

Regarding Claim 3, McDonald teaches the light is s-polarized, and the polarization of the light is rotated by the combiner to produce p-polarized light (Col. 3, Lines 5-25).

However, McDonald fails to teach the combiner consists of a birefringent material.

However, Weber et al. teaches the combiner consists of a birefringent material (page 4, paragraphs 41,42).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Weber et al. in McDonald teaching for having a high contrast image display that uses polarizing beam splitter to function to input beam and fold light path.

Regarding Claim 4, Weber et al. teaches the combiner is coated with a birefringent film (page 5, paragraphs 41,42).

Regarding Claim 8, Weber et al. a head-up display, providing a primary virtual image of an automotive gauge with no ghost images (page 3, paragraph 30, page 1, paragraph 6).

5. Claims 5,6,10,13,14,19,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald (5,212,471) in view of Freeman (US 2004/0109251 A1) as applied to claims 1,2,7,9-12,15-21,21 above further in view of Sebastiano et al. (5,143,796).

Regarding Claim 5, McDonald teaches the light is s-polarized, and the polarization of the light is rotated by the combiner to produce p-polarized light (Col. 3, Lines 5-25).

However, McDonald modified by Freeman fails to teach the combiner is coated with a dielectric film.

However, Sebastiano et al. teaches the combiner is coated with a dielectric film (Col. 4, Lines 1-3).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Sebastiano et al. in McDonald modified by Freeman teaching for having a high contrast image display that holographic combiner and achieves desired reflective and transmissive characteristics.

Regarding Claim 6, Sebastiano et al. teaches the combiner is coated with a metallic film (Col. 4, Lines 5-16).

Regarding Claim 13, McDonald teaches a visual display system (Col. 1, Lines 13-19) comprising: a display light source that transmits an image in at least partially polarized light (Col. 1, Lines 40-49); and a combiner that transmits light from a field of vision behind the combiner to a viewer in front of the combiner, the combiner reflecting a first portion of the light to superimpose the image as a virtual image within the transmitted field of vision, rotating the polarization of a second portion of the light (Col. 1, Lines 40-56, Col. 3, Lines 5-22), and transmitting the second portion of the light, the second portion of the light therefore having low efficiency for reflection towards the viewer from optical boundaries encountered by the second portion of the light following rotation of the plane of polarization by the combiner (Col. 2, Line 23-64, Col. 3, Lines 5-25).

Freeman teaches a visual display system (page 1, paragraph 5, Lines 1-4) that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system (page 1, paragraph 6, page 3, paragraphs 39,40, page 2, paragraph 30) comprising: a combiner positioned between the occupant (viewer) and the windshield (page 1, paragraph 6, page 2, paragraph 27, page 3, paragraphs 39-41).

However, McDonald modified by Freeman fails to teach the combiner is coated with a metallic film.

However, Sebastiano et al. teaches the combiner is coated with a metallic film (Col. 4, Lines 5-16).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Sebastiano et al. in McDonald modified by Freeman teaching for having a high contrast image display that holographic combiner and achieves desired reflective and transmissive characteristics.

Regarding Claim 14, McDonald teaches a head-up display to allow a viewer to wear polarized sunglasses (Col. 3, Line 55 to Col. 4, Line 5).

Regarding Claim 19, Sebastiano et al. teaches the combiner is coated with a both metallic and dielectric film (Col. 4, Lines 32-40).

Regarding Claim 20, Sebastiano et al. teaches the combiner is applied to inner surface of the windshield (Col. 4, Lines 47-51).

Response to Arguments

6. Applicant's arguments with respect to claims 1,13,15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M Dharia whose telephone number is 571-272-7668. The examiner can normally be reached on M-F 8AM to 5PM.

Art Unit: 2673

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

PD

AU2673

May 13, 2005

A handwritten signature in black ink, appearing to read 'Vijay Shankar', is written over a rectangular area.

**VIJAY SHANKAR
PRIMARY EXAMINER**